

REMARKS

Claims 1-6 and 8-28 are currently pending in the subject application, and are presently under consideration. Claims 1-6 and 8-28 are rejected. Claims 1, 16 and 22 have been amended. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I. Objection to Claim 8

Claim 8 has been objected to for not depending from claim 6. Applicant's representative respectfully submits that claim 8 has no elements that would necessitate dependence from claim 6. Accordingly, claim 8 has not been amended, and withdrawal of this objection is respectfully requested.

II. Rejection of Claims 1-5, 11-16 and 18-22 Under 35 U.S.C. §103(a)

Claims 1-5, 11-16 and 18-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,898,751 B2 to Aikawa, et al. ("Aikawa") in view of U.S. Patent No. 6,357,021 B1 to Kitagawa, et al. ("Kitagawa"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 1 has been amended to recite that a device downloads a device program from a non-volatile data source of the device to a volatile memory of the device. The amendments to claim 1 are supported by at least Page 5, Lines 13-21 of the Specification. Aikawa taken in view of Kitagawa does not teach or suggest initiating downloading of a device program from a non-volatile data source of a device to a volatile memory of the device for a predetermined period based on a request signal, as recited in amended claim 1. Instead, Aikawa discloses that a universal serial bus (USB) enables bi-directional isochronous and asynchronous data transfers, including bulk transfers (See Aikawa, Col. Line 57-Col. 2, Line 8). Moreover, Aikawa also discloses that bulk transfers are non-periodic data transfers used to transfer large amounts of information between client software and a universal serial bus (USB) hub device (See Aikawa, Col. 2, Lines 10-13). That is, in Aikawa, bulk transfers are related to data transfers between a USB hub and an external source (namely, client software). In contrast, amended claim 1 recites

initiating downloading of a device program from a non-volatile data source of a device to a volatile memory of the device for a predetermined period based on a request signal.

Accordingly, Aikawa taken in view of Kitagawa does not teach or suggest initiating downloading of a device program from a non-volatile data source of a device to a volatile memory of the device for a predetermined period based on a request signal, as recited in amended claim 1.

Additionally, Aikawa taken in view of Kitagawa fails to teach or suggest that in response to a subsequent request signal from a host, if a device program is not completely downloaded, sending a subsequent negative acknowledgment (NAK) and continuing to download the device program from a non-volatile data source of the device to a volatile memory of the device, and if the device program is completely downloaded, responding to the subsequent request signal by executing the device program, as recited in amended claim 1. In rejecting claim 1, the Examiner contends that Col. 2, Line 59 of Aikawa discloses these elements of claim 1 (See Office Action, Page 5). Applicant's representative respectfully disagrees. Aikawa discloses that a USB driver sends bulk data request signals (IN tokens) to USB devices, and that the USB devices send NAK signals unless some bulk data is ready to be transferred to the device (See Aikawa, Col. 2, Lines 51-55). Additionally, Aikawa discloses that since the host controller has to constantly poll the device which keeps sending a NAK signal, the host controller wastes resources and time (See Aikawa, Col. 2, Lines 58-60).

In amended claim 1, if the device program is not completely downloaded, a subsequent NAK signal is sent, and the device program is continued to be downloaded from a non-volatile data source of the device to a volatile memory of the device in response to a request signal from a host. That is, in claim 1, the device receives a subsequent request signal from the host during a downloading of the device program and responds to the subsequent request signal with a subsequent NAK. In contrast to amended claim 1, nothing in the cited section of Aikawa, nor any other section of Aikawa teaches or suggests that NAK signals are sent while a device (e.g., a USB device) is downloading (e.g., a bulk transfer). Accordingly, Aikawa taken in view of Kitagawa fails to teach or suggest that in response to a subsequent request signal from a host, if a

device program is not completely downloaded, sending a subsequent NAK and continuing to download the device program from a non-volatile data source of the device to a volatile memory of the device, and if the device program is completely downloaded, responding to the subsequent request signal by executing the device program, as recited in amended claim 1.

The addition of Kitagawa does not make up for the aforementioned deficiencies of Aikawa. In rejecting claim 1, the Examiner relies on Kitagawa solely for Kitagawa's disclosure of a microcontroller 106 receiving a power-on or reset signal from a host 90. Accordingly, Aikawa taken in view of Kitagawa does not make amended claim 1 obvious, and amended claim 1, as well as claims 2-5 and 11-15 depending therefrom, should be patentable over the cited art.

Additionally, Aikawa taken in view of Kitagawa does not teach or suggest that non-volatile memory is at least one of an electronically erasable programmable read only memory (EEPROM) and a flash memory, as recited in claim 3. In rejecting claim 3, the Examiner contends that Kitagawa discloses the elements of claim 3 (See Office Action, Page 7, citing Col. 3, Line 36 of Kitagawa). Applicant's representative respectfully disagrees. The cited section of Kitagawa discloses that an EEPROM can be used instead of or in addition to flash memory (See Kitagawa, Col. 3, Lines 35-36). However, by virtue of claim 3's dependence from claim 1, claim 3 recites that a device program is downloaded from one of an EEPROM and flash memory to a volatile memory of the device. In contrast to claim 3, nothing in Kitagawa teaches or suggest that a device program is downloaded from one of an EEPROM and flash memory to a volatile memory of the device, as recited in claim 3. Thus, Aikawa taken in view of Kitagawa does not make claim 3 obvious.

Furthermore, Aikawa taken in view of Kitagawa does not teach or suggest setting a loop counter based on a number of data blocks to be downloaded, as recited in claim 15. In rejecting claim 15, the Examiner contends that Col. 5, Lines 51-53 of Aikawa discloses the elements of claim 15 (See Office Action, Page 8). Applicant's representative respectfully disagrees. The cited section of Aikawa discloses that a historical range of values is built that records an average number of times a device NAKs before transferring data (See Aikawa, Col. 5, Lines 50-53). The

cited section of Aikawa fails to disclose any structure or process that corresponds to setting a loop counter based on a number of blocks to be downloaded, as recited in claim 15. In particular, an average number of times a NAK is transmitted by a device (e.g., historical values) has no relationship to the loop counter that is set in claim 15 and is based on the number of blocks to be downloaded.

Moreover, by virtue of claim 15's dependence from amended claim 1, the loop counter that is based on the number of blocks to be downloaded (as recited in claim 15) is set on a device that downloads a device program from a non-volatile data source on the device. In contrast, in Aikawa, the historical range of values (which the Examiner contends corresponds to the loop counter recited in claim 15) is calculated on a device that polls devices that NAK (e.g. a USB hub; See e.g., Col. 5, Lines 48-50). Thus, Aikawa taken in view of Kitagawa does not teach or suggest setting a loop counter based on the number of data blocks to be downloaded, as recited in claim 15. Accordingly, Aikawa taken in view of Kitagawa does not make claim 15 obvious.

Claim 16 has been amended in a manner similar to amended claim 1. Aikawa taken in view of Kitagawa does not teach or suggest initiating downloading a device program from a non-volatile data source of a USB device to a volatile memory of the USB device based on a request signal type, as recited in amended claim 16. Instead, as discussed above with respect to amended claim 1, Aikawa discloses bulk transfers are related to data transfers between a USB hub and an external source (namely, client software; See Aikawa Col. 2, lines 10-13). Additionally, Aikawa taken in view of Kitagawa fails to teach or suggest that in response to a subsequent request signal from a USB host that if a firmware is not completely downloaded, sending a subsequent NAK and continuing to download data blocks associated with the firmware from the non-volatile data source of the USB device to the volatile memory of the USB device, and if the firmware is completely downloaded, responding to the subsequent request signal by executing the firmware, as recited in amended claim 16. In fact, as discussed above with respect to amended claim 1, Aikawa (which the Examiner contends discloses these elements of claim 16) is completely silent on a USB device sending a NAK while downloading, in contrast to amended claim 16. Accordingly, Aikawa taken in view of Kitagawa does not teach or suggest the method recited in

amended claim 16. Thus, Aikawa taken in view of Kitagawa does not make amended claim 16 obvious. Therefore, amended claim 16, as well as claims 18-21 depending therefrom, should be patentable over the cited art.

Additionally, Aikawa taken in view of Kitagawa does not teach or suggest determining a signal request type and setting a predetermined time period accordingly, as recited in claim 19. In rejecting claim 19, the Examiner contends that Aikawa inherently discloses the elements of claim 19 (See Office Action, Page 9, citing Col. 2, Lines 1-3). Applicant's representative respectfully disagrees. The cited section of Aikawa discloses four different types of data transfers, namely, interrupt transfers, isochronous transfers, control transfers and bulk transfers (See Aikawa, Col. 2, Lines 3-10). In contrast to claim 19, the cited section of Aikawa fails to teach or suggest that a predetermined time period is set according to a signal request type. Thus, Aikawa taken in view of Kitagawa is completely silent on determining a signal request type and setting a predetermined time period accordingly, as recited in claim 19.

Moreover, Applicant's representative respectfully asserts that even assuming *arguendo* that the features of claim 19 are inherent to Aikawa, as contended by the Examiner, that the Examiner has still failed to show that Aikawa taken in view of Kitagawa makes claim 19 obvious. Arguments based on "inherent" properties can not stand when there is no supporting teaching in the prior art since inherency and obviousness are distinct concepts. *In re Dillon* 919 F.2d 688, 718, 16 U.S.P.Q.2d 1897 (Fed. Cir. 1990). Since claim 19 is rejected based on an obviousness type rejection, Applicant's representative respectfully submits that the inherent properties of the cited art are irrelevant. Accordingly, claim 19 is not made obvious by Aikawa taken in view of Kitagawa.

Claim 22 has been amended to recite an instruction memory storing instructions for execution by a microcontroller unit (MCU) upon reset, the execution of the instructions controlling a device to respond with a NAK in response to a request signal from a host controller, to download firmware (stored in a non-volatile memory) to a volatile memory for use by the MCU for a period of time after responding with the NAK, and to continue to respond with NAKs and to download the firmware until downloading of the firmware to the volatile memory has

completed, and to execute the firmware in response to a request signal thereafter. The amendments to claim 22 are supported by at least Page 5, Lines 13-21 of the Specification. For reasons similar to those discussed above with respect to amended claims 1 and 16, Aikawa taken in view of Kitagawa fails to teach or suggest a USB compatible device that downloads firmware from a non-volatile memory of the USB device to a volatile memory of the USB device, as recited in claim 22.

Instead, as discussed above with respect to amended claims 1 and 16, Aikawa discloses bulk transfers are related to data transfers between a USB hub and an external source (namely, client software; See Aikawa Col. 2, lines 10-13). Therefore, Aikawa taken in view of Kitagawa fails to teach or suggest an instruction memory storing instructions for execution by an MCU upon reset, the execution of the instructions controlling a device to respond with a NAK in response to a request signal from a host controller, to download a firmware to a volatile memory for use by the MCU for a period of time after responding with the NAK, and to continue to respond with NAKs and to download the firmware until downloading of the firmware to the volatile memory has completed, and to execute the firmware in response to a request signal thereafter, as recited in amended claim 22. Thus, Aikawa taken in view of Kitagawa does not make amended claim 22 obvious, and amended claim 22 should be patentable over the cited art.

For the reasons described above, claims 1-5, 11-16 and 18-22 should be patentable over the cited art. Accordingly, withdrawal of this rejection is respectfully requested.

III. Rejection of Claims 6, 8-9 and 17 Under 35 U.S.C. §103(a)

Claims 6, 8-9 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Aikawa in view of U.S. Patent no. 6,145,045 to Falik, et al. ("Falik"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claims 6, 8-9 and 17 depend from amended claims 1 and 16. Accordingly, claims 6, 8-9 and 17 are patentable for at least the same reasons as amended claims 1 and 16. In rejecting claims 6, 8-9 and 17, the Examiner cites Falik solely for Falik's disclosure of a pointer to a first memory (See Office Action, pages 10-11). However, the addition of Falik fails to make up for

the aforementioned deficiencies of Aikawa taken in view of Kitagawa, with respect to amended claims 1 and 16, from which claims 6, 8-9 and 17 depend. Accordingly, Aikawa taken in view of Kitagawa fails to make claims 6, 8-9 and 17 obvious. Thus, withdrawal of this rejection is respectfully requested.

IV. Claims 23-28

Claims 23-28 depend from amended claim 22. No reasons for the rejection of claims 23-28 were given by the Examiner. Thus, Applicant's representative presumes that claims 23-28 would be allowable if re-written in independent form. Therefore, allowance of claims 23-28 is respectfully requested.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0668.

Respectfully submitted,

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